

him" as having weighed heavily upon science by impeding the comprehension of the value of new observations.

In discussing the antiquity of man, the present geological epoch is considered with "almost absolute certainty" as having commenced less than 100,000 years ago, and the opinion is pronounced that no facts have as yet been discovered which authorise us to place the cradle of the human race elsewhere than in Asia. As to the appearance of primitive man, our author concludes that "all that the present state of our knowledge allows us to say is that, according to all appearance, he ought to be characterised by a certain amount of prognathism, and have neither a black skin nor woolly hair. It is also fairly probable that his colour would resemble that of the yellow races, and his hair be more or less red. Finally, everything tends to the conclusion that the language of our earliest ancestors was a more or less pronounced monosyllabic one."

Once in possession of these views of our author, we can with the greater advantage read the excellent summaries and descriptions which form a large portion of the work relative to migration, acclimatisation, and "fossil races"; but perhaps the most interesting are those devoted to the "Psychological Characters of the Human Species." These tend to show in a new sense the brotherhood of man, so that if political economy could be called the "dismal science," anthropology should be considered as the most cheerful of its learned sisters. M. de Quatrefages combats some of the views of Sir John Lubbock as expressed in his "Origin of Civilisation" with great force, and has some very useful reflections on the danger of attributing all sense of honesty as absent in certain races on insufficient data. "Nothing is more common than to hear travellers accuse entire races of an incorrigible propensity for theft. The insular populations of the South Sea have, amongst others, been reproached with it. These people, it is indignantly affirmed, stole even the nails of the ships! But these nails were iron, and in these islands, which are devoid of metal, a little iron was, with good cause, regarded as a treasure. Now, I ask any of my readers, supposing a ship with *sheathing* and *bolts* of gold, and nails of diamonds and rubies were to sail into any European port, would its sheathing or its nails be safe?"

In conclusion, though many parts of this work show that to the author Darwin must have lived and written in vain, and some of the portions appear as anthropology little advanced from the time of Prichard, we cannot but still feel grateful that the general literature of this little-known, but most necessary of sciences, should have been enriched by a useful though not infallible book.

W. L. DISTANT

#### LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

#### Parthenogenesis in a Beetle

I do not know whether any instances have been recorded of parthenogenesis in the coleoptera, nor does the interest of the

case I am about to relate consist in the discovery of the operation of a not uncommon mode of insect reproduction in a new field, but rather in its altogether abnormal and fortuitous character in the species of beetle concerned, viz., *Gastrophysa raphani*. My own observations hitherto on this species have been uniformly to the effect that unimpregnated females lay always barren eggs, and that one intercourse with the male renders fruitful all eggs subsequently laid. I bred the female in question from the egg this year, and have kept her isolated since her exclusion as an imago. She has laid, up to the present, about twenty batches of eggs consisting of about thirty-four and fifty-one alternately in the batch. Of these, some fifteen batches have been observed; and only in one of these, No. 10, to wit, consisting of thirty-four eggs, and in one of these thirty-four only were any traces of development observed. This batch was laid between the 2nd and 4th of August. On the 5th I noticed in one an appearance which is usual about this time in fertilised eggs, which I have been accustomed to think about as the "embryonic scroll," and which, on reference to Huxley's "Anatomy of Invertebrate Animals," pp. 444-445, I am inclined to think may be what is there called "the sternal band (*Keimstreif* of the German embryologists)." This scroll is invariably present in *Gastrophysa* eggs regularly developing, and enables one to predict with certainty the position of the ventral aspect, and of the head and tail of the future larva. On the 6th this same appearance was more distinctly marked. On August 10 a further well-defined stage of development had been reached. On the 11th the ocelli were plainly visible. Next day I noted the antennæ, mandibles, palpi, and legs. The segments, warts, and spiracles were also to be seen. On the 12th and some subsequent days I saw plainly somewhat feeble but unmistakable and decided movements of the legs, especially of the tarsi and unguis. At this season of the year the egg should have been hatched in about ten or twelve days. I have no longer any hope of this, and all larval movements appear to have ceased. All the other (thirty-three) eggs have undergone the usual degeneration, but this one presents a striking contrast to them, showing all the external parts perfectly formed and distinctly visible, as far as the position of the larva (which is just the reverse of the usual one, namely, with the dorsum in place of the venter next the surface of attachment) allows them to be seen. There is an unusual appearance of brownish coloration towards the caudal end, the nature of which I have not made out. The failure to hatch out, however, does not hinder this from being a decided case of embryonal development in an egg laid by a female of *Gastrophysa raphani* whose virginity is assured; and it is a solitary instance occurring among some eight or nine hundred eggs laid by the same beetle both before and after and along with it, all of which (as far as observed) were normally and uniformly barren.

J. A. OSBORNE

Milford, Letterkenny, August 18

#### FONTS IN THE ROCKS OF BROOK COURSES

I BELIEVE the present an opportune time to direct the attention of geologists to the occurrence of water-graven *fonts* in the rocks of brook courses, as the season of field-work is come, and the summer conditions of our water-courses facilitate observations of this most curious and interesting, as well as deeply important, of river physics.

So long ago as two years, examining the rocks bared on a river channel for the purpose of making a section, I found *fonts* in the rocks over which the waters run (in Slievardagh coal-field, Tipperary). I had not previously known of their occurrence. Those I first found I then looked on as something exceptional, but as my investigations extended and as I learned to recognise the conditions under which *fonts* are graven, I found them to be pretty general in streams having rapid descents. Nor do I think their occurrence is generally known and noted by geologists and physicists. I have seen in print but one allusion to them—in NATURE, vol. xix. p. 76, where they are notified as observed in a river in East Africa during the dry season as a "noteworthy peculiarity."

In what hereinafter appears, I do not at all mean to question the theory given as explanatory of the large "well-like basins" on the African river; doubtless our traveller had his good reasons for his conclusions.

The mode of occurrence of these *fonts* in the Slievardagh brooks is, I venture to submit, as follows:—They are graven in the rocks by falling waters; these waters being the main stream,

a portion (and it may be a diminutive quantity) locally detached from the main stream, or a feeder dropping into the main stream from steep, rocky sides. This is the primary cause. But along with the presence of a graving machine in the falling waters, to explain the making of the fonts a concurrent cause is necessary, as otherwise they should be looked for anywhere and everywhere on rapid descents. The conducive condition is the coincidence of falling waters with a *weakness* of the rock, such as an intersection of the division planes or fissures. I have secured a specimen font, 10 inches deep and 12 inches width across the bell-shaped mouth, in compact siliceous rock graven by a

diminutive shoot of the main stream running down the depression which generally marks the edge of a division plane till it reached an intersection; at the intersection it graved a font, and issuing from this went on to the next, and there graved another (see sketch, Fig. 1). The stream, flowing round and kept up by a bed of rock dipping approximately in the direction of the current, overflows in flood-time, or generally except in dry summer weather, down the fissure A B; at the intersections the fonts were graven, and the water on leaving the lower one runs along the edge of a superposed bed. We are now bound to seek a limiting condition, as otherwise almost every pool into which there

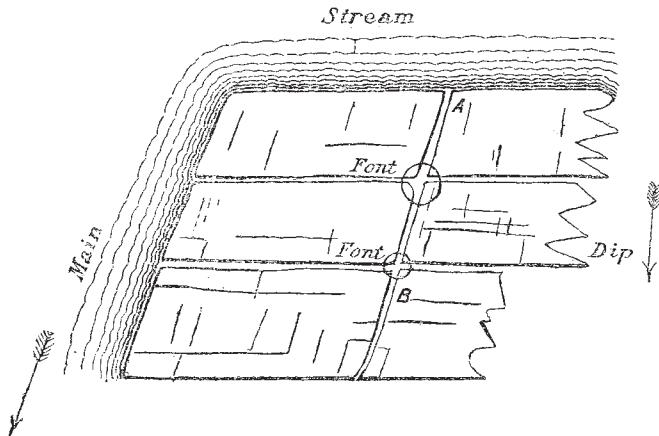


Fig. 1

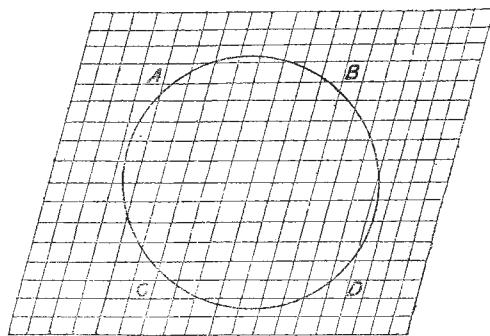


Fig. 2

is a waterfall might reasonably be expected to be a font. The limiting cause is the relation between the size of the blocks into which the rock is divided and the graving power of the falling waters. If the waterfall is sufficient to grave a font of over a certain size in rocks broken by planes into blocks of a certain size, the consequence is that the whole blocks or blocks by fragments will be broken away, and the walls will be the divisional planes of the rock and lose altogether the font shape, as is wholly or partially the case under our larger waterfalls owing to the "pigmy plan" on which our (Slievardagh) rocks are broken up by planes. Fig. 2 will explain the meaning I wish to convey.

Suppose the rocks broken by two sets of planes, and there may be many sets and the stratification as well; now suppose a font graven to the size of the circle; it is plain that this could not have stability, as the blocks at A, B, C, D would have come away during the process. But had the font been so small as to take only a portion of any four blocks no discontinuance of the graving action could yet have occurred.

I may add that about 2 feet in width and depth is the size of the largest font I have come upon hitherto.

WILLIAM MORRIS

Earlshill Colliery, Thurles

#### The Good Time Begun

THE following has just been received from a nephew in the Bombay Presidency, who, after speaking generally of a tremendous gale from the south-west, with heavy sea, fog, &c., all along the West Coast, writes thus more particularly:—

"That same mist and rain have been for the present the saving of this Presidency from another famine. It (the rain) has been general and heavy all over the country, and was just in time to save the crops, which were fast perishing from lack of moisture. If we have a little more this month and another good fall in September, we shall be quite safe; and I do trust we shall not be disappointed, as another year—the fourth in succession—of scarcity would well nigh make 'the bankruptcy of India,' so far as Bombay is concerned, a sad fact."

You will note the appearance of this desiderated Indian rain coming from the same direction as the chief part of that which has been deluging our own country; but which Mr. Campbell shrewdly attributed, in NATURE, vol. xx. p. 403, to the sun recovering his forces and beginning already to shine, after his recent languid, spotless years, with increased radiation on the great oceans of the south.

PIAZZI SMYTH

15, Royal Terrace, Edinburgh, August 30

#### Insect-Swarms

IN answer to Mr. Hawkshaw's question whether any one had seen a flight of moths and butterflies in England similar to the one he observed at Trouville on August 12 and 13, I can say that on August 12 I was walking on the Dawlish Warren (a bar of sand stretching across the mouth of the Exe) and noticed a great number of *P. gamma* moths; they were close to the edge

of the water; many of them were dead, and the sand hoppers were eating them, but many more were alive and trying to flutter inland, but seemed too weak to do so. I picked up some and carried them to some wild thyme and they began to feed at once. Some of the moths were in good condition but others very much battered. The wind was blowing freshly from the sea at the time. The moths swarmed in the hedges all the way from our house to the Warren, a distance of four miles, especially on the bramble flowers. There were a great many *V. cardui* with the moths in the hedges, but none on the beach. A few days afterwards I had a letter from my brother at Dieppe saying there had been a swarm of moths and butterflies there, especially mentioning *P. gamma* and *V. cardui*, but there were also skippers and clouded whites. They swarmed about the town and country and were lying dead on the beach. The swarm of moths and butterflies was also on August 12.

EDITH PYCROFT

Kenton, near Exeter, August 31

#### Earthquake in Dominica

A SEVERE shock of earthquake was felt here at 1.20 A.M. yesterday (Sunday) the 10th instant, and at intervals, until 1.52, there were several tremulous movements of the earth. The noise immediately preceding the first shock reminded me of the clatter which is sometimes heard on board an ocean-going steamer in very rough weather, when a heavy sea strikes the ship, and all the crockery laid out for dinner is suddenly thrown from the "fiddles" and broken into pieces on the floor of the saloon.

After the first shock there was an interval of perfect quiet until 1.30, when subterranean noises like the discharging or booming of distant guns attracted my attention, and then, at